What is claimed is:

1. A method of matching an aerial impedance to a generator impedance of a radio transmitter, the method comprising the steps of:

providing an aerial having a length of less than or equal to approximately three meters;

receiving a total input power having a magnitude of less than or equal to approximately 100 milliwatts;

selecting a transmission frequency from a range of approximately 510 kilohertz to approximately 1705 kilohertz;

measuring an aerial output voltage at the selected transmission frequency; and

automatically adjusting a magnitude of an impedance of the aerial until the measured aerial output voltage reaches a substantially maximum value.

2. The method of claim 1, further including the step of providing a transmission line wherein the total length of the aerial and the transmission line is less than or equal to approximately three meters.

3. The method of claim 1, further including the step of providing a ground lead where the total length of the aerial and the ground lead is less than or equal to approximately three meters.

4. The method of claim 1, further including the step of providing a transmission line and a ground lead where the total length of the aerial, the transmission line and

the ground lead is less than or equal to approximately three meters.

5. The method of claim 1, wherein the total input power comprises the total input power supplied to the final radio frequency stage.

6. The method of claim 5, wherein the value of the total input power excludes the amount of power supplied to a filament and to a heater.

7. The method of claim 1, wherein the step of automatically adjusting the magnitude of the aerial impedance further includes automatically increasing the magnitude of the aerial impedance until the magnitude of the measured aerial output voltage is substantially equal to a maximum value.

8. The method of claim 1, wherein the step of measuring the aerial output voltage further includes measuring the aerial output voltage on a periodic basis and the step of automatically adjusting the magnitude of the aerial impedance further includes the steps of automatically incrementally increasing the magnitude of the aerial impedance on a periodic basis until the measured aerial output voltage has a magnitude that is less than the magnitude of a previously measured aerial output voltage and decreasing the magnitude of the aerial impedance until the measured aerial output voltage is substantially equal to the previously measured aerial output voltage.

9. The method of claim 8, further including the step of storing the measured aerial output voltage as a previously measured aerial output voltage prior to

incrementally increasing the aerial impedance.

10. The method of claim 1, wherein the step of automatically adjusting the magnitude of the aerial impedance further includes automatically decreasing the magnitude of the aerial impedance until the magnitude of the measured aerial impedance is substantially equal to a maximum value.

11. The method of claim 1, wherein the step of measuring the aerial output voltage further includes measuring the aerial output voltage on a periodic basis and the step of automatically adjusting the magnitude of the aerial impedance further includes automatically incrementally decreasing the magnitude of the aerial impedance on a periodic basis until the measured aerial output voltage has a magnitude that is less than the magnitude of a previously measured aerial output voltage and increasing the magnitude of the aerial impedance until the measured aerial output voltage is substantially equal to the previously measured aerial output voltage.

12. The method of claim 11, further including the step of storing the measured aerial output voltage as a previously measured aerial output voltage prior to incrementally decreasing the aerial impedance.

13. The method of claim 1, wherein the step of automatically adjusting the magnitude of the aerial impedance further includes adjusting the inductance of an adjustable inductor coupled to the aerial.

14. The method of claim 13, wherein the step of adjusting the inductance of the adjustable inductor further includes adjusting the inductance of a first coil when the selected transmission frequency is with a range of approximately 510 kilohertz to approximately 1000 kilohertz and adjusting the inductance of a second coil when the selected transmission frequency is within a range of approximately 1000 kilohertz to approximately 1705 kilohertz.

15. A radio transmitter adapted to automatically adjust aerial impedance for a selected radio frequency, the radio transmitter comprising:

a tunable radio frequency signal generator having an impedance, adapted to generate a radio frequency signal in the range of approximately 510 kilohertz to approximately 1705 kilohertz and adapted to receive less than or equal to approximately 100 milliwatts of total input power;

an aerial coupled to the tunable radio frequency signal generator and adapted to transmit the radio frequency signal, the aerial having an output voltage, an aerial impedance and a length of less than or equal to approximately three meters;

an adjustable inductor coupled to the aerial;

a sampler coupled to the aerial and adapted to measure the aerial output voltage;

a processing unit coupled to the sampler and to the adjustable inductor , the processing unit, responsive to the measured aerial output voltage, adjusting the adjustable inductor until the aerial impedance is approximately matched to the radio frequency signal generator impedance.

16. The radio transmitter of claim 15, further comprising a transmission line wherein the total length of the aerial and the transmission line is less than or equal to approximately three meters.

17. The radio transmitter of claim 15, further comprising a ground lead where the total length of the aerial and the ground lead is less than or equal to approximately three meters.

18. The radio transmitter of claim 15, further comprising a transmission line and a ground lead where the total length of the aerial, the transmission line and the ground lead is less than or equal to approximately three meters.

19. The radio transmitter of claim 15, wherein the total input power comprises the total input power supplied to the final radio frequency stage.

20. The radio transmitter of claim 15, wherein the value of the total input power excludes the amount of power supplied to a filament and to a heater.

21. The radio transmitter of claim 15, wherein the processing unit is further adapted to issue a command to iteratively increase the impedance of the adjustable inductor until the measured aerial output voltage ceases increasing thereby matching the aerial impedance to the radio frequency signal generator impedance.

22. The radio transmitter of claim 15, wherein the processing unit is further adapted to issue a command to iteratively decrease the impedance of the adjustable inductor until the measured aerial output voltage ceases increasing thereby matching the aerial impedance to the radio frequency signal generator impedance.

23. The radio transmitter of claim 15, wherein the adjustable inductor comprises a first tuning coil and a second tuning coil.

24. The radio transmitter of claim 23, wherein each of the first and second tuning coils comprises a ferrite core mounted on a motor driven carriage.

25. The radio transmitter of claim 15, further comprising a record/playback device coupled to the tunable radio frequency generator.